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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,093	06/25/2003	Chia-Fu Chang	ELUP0003USA	1092
27765	7590	10/01/2004	EXAMINER	
NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE) P.O. BOX 506 MERRIFIELD, VA 22116			SAWHNEY, HARGOBIND S	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,093	CHANG ET AL.	
	Examiner	Art Unit	
	Hargobind S Sawhney	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003 and 27 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/25/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The preliminary amendment and the information disclosure statement filed on July 27, 2004 have been entered. Accordingly, claims 1, 2, 5, 7 and 8 have been amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaku et al. (US Patent No.: 6,376,908 B1) in view of Yeager et al. (US Patent No.: 6,507,049 B1).

Regarding Claim 1, Gaku et al. ('049 B1) discloses a light emitting diode (LED) light source (Figure 1-7) comprising:

- a printed circuit board (PCB) having a plurality of holes (Figure 2, column 9, lines 27-34); a heat sink b connected under the PCB for conducting heat (Figure 2, column 9, lines 23-27);

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- a plurality of heat conductors – protrusions of element b – protruding the heat sink b and formed on the heat sink corresponding to each hole of the PCB (Figure 2, column 9, lines 23-27); and
- an LED chip attached to the heat sink conductor b (Figure 2, column 9, lines 34-36).

Gaku et al. ('049 B1) teaches the LED light source having the LED chip installed on the flat surface of the heat conductor, instead of the LED chip being mounted in a basin defined on the heat conductor surface as claimed by the applicant.

On the other hand, Yeager et al. ('049 B1) teaches a solid-state device (Figure 2) including an LED chip 4 mounted in basin 19 defined in a heat conductor 17 (Figure 2, column 10, lines 27-34).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the LED light source of Gaku et al. ('049 B1) by providing a heat conductor having an LED mounted in a basin as taught by Yeager et al. ('049 B1) for the benefits of cross fluxing of the LED light, and efficient heat removal.

Regarding claims 2-6, Gaku et al. ('049 B1) in view of Yeager et al. ('049 B1) disclose the LED light source further comprising:

- the printed circuit board inherently including a plurality of conductive wires l connected between an electrode of the LED chip j and an electrode of the PCB (Gaku, Figure 2);

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- the heat sink b including the protrusion of the heat sink b being a metal sheet (Gaku, abstract) generally made of aluminum well known on the art as evidenced in Schneider (Abstract, US Patent No.: 5,172,301); and
- a silver epoxy k for fixing the LED chip on the protrusion of the heat sink b (Gaku, Figure 2, column 10, lines 65-67).

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaku et al. (US Patent No.: 6,376,908 B1) in view of Yeager et al. (US Patent No.: 6,507,049 B1) as applied to claim 1 above, and further in view of Kamada (US Patent Application Pub. No.: US 2003/0168720 A1).

Regarding claims 7 and 8, Gaku et al. ('049 B1) and Yeager et al. ('049 B1) discloses a transparent an encapsulation covering the LED chip. However, neither combined nor individual teaching of Gaku et al. ('049 B1) and Yeager et al. ('049 B1) specifically discloses a LED light source including:

- a housing enclosing reflecting light and transmitting heat; and
- a lens focusing the light from the LED chip.

On the other hand, Kamada (US Patent Application Pub. No.: US 2003/0168720 A1) discloses a semiconductor device 100 comprising a housing 104 enclosing a focusing lens 107, an LED chip 101 and circuit board (Figures 1A and 2, abstract, Para. 0045);

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the LED light source of Gaku et al. ('049 B1) in view of Yeager et al. ('049 B1) by providing the housing as taught by Kamada (US Patent

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Application Pub. No.: US 2003/0168720 A1) for the benefits of protecting the PCB and LED chips from chemical, environmental and mechanical abuses.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Epstein (U.S. Patent Application Pub. No. US 2003/0230977 A1),

Marshall et al. (U.S. Patent Application Pub. No. US 2003/0076034 A1)

Bond et al. (U.S. Patent No. 5,991,156),

McShane et al. (U.S. Patent No. 5,012,386),

Schneider (U.S. Patent No. 5,172,301) and

Arai et al. (Japanese Patent No. JP 04124863 A)

Each of the above-indicated prior arts discloses an LED light source comprising some of the claimed features claimed by the applicant.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 571-272-2380. The examiner can normally be reached on 6:15 - 2:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571-272-2378. The fax phone numbers

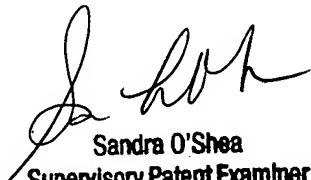
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for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2956.

HSS

9/28/2004



Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800